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Chapter 8 – Tree Installation & Establishment

Maryland DNR Forest Service – Urban & Community Forestry
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Tree Installation and Establishment

- How to plant and transplant
- Staking and guying
- Tree care

Trees are generally available from nurseries in one of three forms:

1. Bare root;
2. Balled and burlapped;
3. Containerized.

- When planting a BARE ROOT tree, dig the hole 2 x 5 times bigger than the diameter of the stem at the root collar.
- The side should be slanted and the depth the same or a little less than the root ball.
- The hole should then be domed in the middle and the tree set on the dome with the roots spread out around the dome.
- This will allow the roots loose soil to grow in.
- Do not expose roots to air – will dry out.
- Limited root system – might need staking.

Planting a tree with a TAP ROOT requires digging a hole deep enough to extend the root down straight beneath the stem. Do not bend the tap root.

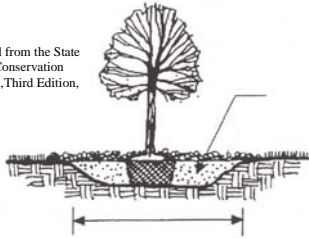
The hole should not be deeper than the extended tap root because the root collar will be covered by soil.

Balled & Burlaped Trees -

Before accepting planting stock, the soil level at the top of the root ball or container should be examined in order to determine if the root collar is at the proper level.

Balled & Burlaped Trees -

Adapted from the State Forest Conservation Manual, Third Edition, 1997



- Dig a hole at least as wide and as deep, or slightly less than as deep, as the rootball;

- Remove sod; Loosen soil;

- Slope sides, no glazed sides;

Handle trees carefully, not by stem, avoid root breakage.

Balled & Burlaped Trees -

- If drainage is problem, root ball can be planted 1/3 height of root ball above grade;

- To eliminate settling, bottom of hole should remain undisturbed – give solid support to root ball.

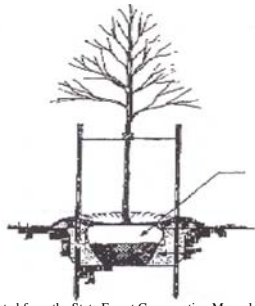


Adapted from the State Forest Conservation Manual, Third Edition, 1997

- No air pockets, vertical trunk;
- Firm up, water.

- Backfill with same soil, unless very poor soil;

- In most cases, amending soil backfill with organic material will not be of any particular benefit;



Adapted from the State Forest Conservation Manual,
Third Edition, 1997

Balled & Burlaped Trees -

Cut the burlap and twine.

Remove burlap from top and sides of root ball. May leave burlap on bottom of ball. This will allow the roots to grow out the top of the root ball.

Fold burlap down to avoid wicking.

Remove if synthetic burlap, remove twine.

The same is true of wire baskets. Wire baskets are larger than B&B.

Cut away as much of wire as possible, unless root ball too loose.

Under normal conditions, root growth is best encouraged by planting even with the surrounding terrain.

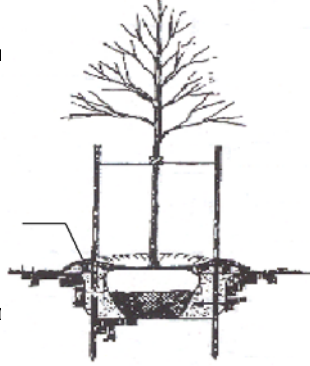
In wet conditions where drainage is a problem, raising about 1/3 of the root ball above ground will aid the spread of lateral roots.

In arid conditions, a basin can be used to collect water.

Make berm to collect water;
turn grass upside down;

Avoid concentrating water
root ball, encourage root
growth;

Remove the tags, labels, and
tree guards.



Adapted from the State Forest Conservation Manual,
Third Edition, 1997

- A containerized tree may be root bound.
- Separate and cut the roots, especially any girdling/circling roots.
- This will encourage roots to grow out into soil.
- Remove container before planting, unless it is biodegradable.

Girdling roots are common in trees which were
started in containers.

Girdling, kinked and circling roots could reduce the
growth of a tree, or even kill it.

Transplanting

- **Timing**
- **Root pruning**
- **Size considerations**
- **Tree spade**

When is the best time to transplant trees?

Deciduous Trees:

After leaf drop or
abscission in the fall
and before leaf out in
the spring.

Evergreen Trees:

Earlier in the fall and
later into the spring
than deciduous.

Time to transplant can be species specific.
Check first.

Transplanting

Root pruning helps before transplanting. Pruning should
be done with sharp tools to make clean cuts.

When a tree is harvested for transplanting, as little as 5%
of the root system is likely to remain.

Transplanting

- When digging a tree for transport, a rule of thumb for the width of the rootball is a minimum of 10 inches rootball diameter for every inch trunk diameter.
- Make clean cuts, wrap with burlap if greater than 18" unless loose soil, drum lace large root ball;
- Balled and burlapped trees with large soil balls should be drumlaced with rope for additional support;
- Trees with large tap root systems harder to transplant than fibrous root systems.

Transplanting

• Size considerations

- Anticipate height and spread of tree at maturity;
- Check the proximity of tree's location to hardscape features and utilities;
- What is the shade tolerance of the tree compared to the photoperiod on site.

Large trees can be transplanted by a mechanical device known as a **tree spade**.



Tod Ericson, 2002, MD DNR Forest Service

When using a tree spade, no attempt should be made to move trees that exceed the size limitations of the machine being used.



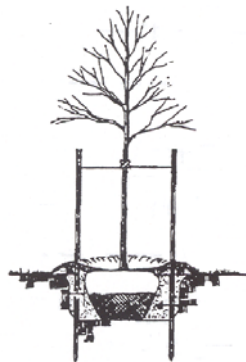
Tod Ericson, 2002, MD DNR Forest Service

If deciduous trees must be moved in leaf, the use of antitranspirants may be warranted to reduce the possibility that plants will reach the permanent wilting point before, during, or after transplanting.

Staking is not always necessary. Staked trees often have smaller caliper, less trunk taper, and are more subject to tipping after the stakes are removed.

Stake if site is windy, has sandy soil, or if it is a tall tree, or a lot of pedestrian traffic or equipment, large canopy.

If a single stake is used, place it on the upwind side.



Adapted from the State Forest Conservation Manual, Third Edition, 1997

Trees greater than 4 inches in diameter often require guying.

Trees are guyed with three or four wires anchored to the ground.

When using metal stakes, wooden stakes or eye screws with turn buckles as devices for staking and guying, check several times a year for maintenance to make sure that the tree is not being girdled and that the system is still intact.

If installing trees over 8 inches in diameter, support the tree from four guy wires of 1/4", 7-strand cable, 3/8" lag hooks, turnbuckles and deadmen.

Why remove wraps and staking?



Remove wires and tags to prevent girdling. Tree staking and wraps should not be left on for more than one year.



Becky Wilson, MD DNR Forest Service

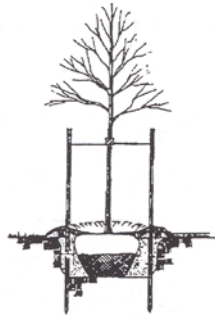
If trunk wrap and staking materials are left on indefinitely, trunk girdling and constriction may occur.

Mulching

Mulch layer should not exceed 2 to 4 inches in depth.

3' TO 6' around the tree. Can be as large as you wish.

Mulch should not be placed against the trunk, collar rot can occur.



Adapted from the State Forest Conservation Manual, Third Edition, 1997

Immediately after planting or transplanting, how should the young tree be pruned?

- According to ANSI standards;
- Prune only dead or broken branches;
- If an evergreen, do not prune because no latent buds;
- Do **NOT** prune crown to balance with remaining root stock.

The rate of recovery & re-establishment after planting and transplanting varies with species. The general rule of thumb for re-establishment in temperate climates is one year for each inch of caliper.

Maryland Department of Natural Resources-
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